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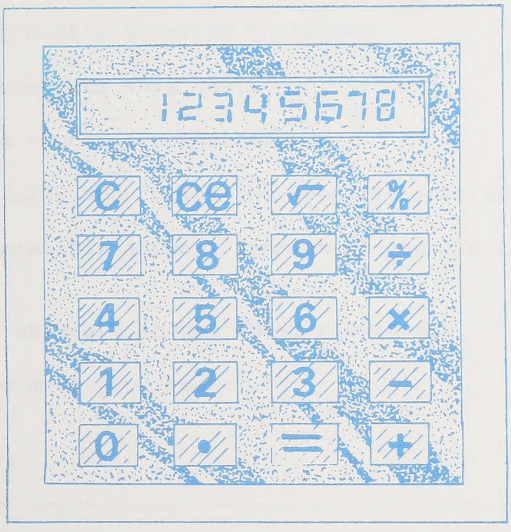
GRADE 9 PILOT TEST



Mathematics

June 1988

Alberta
EDUCATION

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GRADE 9 MATHEMATICS

PILOT TEST

GENERAL INSTRUCTIONS

1. This test consists of 75 multiple-choice questions.

2. You have 90 minutes to complete this test.

3. The use of calculator is highly recommended.

4. Read each question carefully and follow the specific instructions given.

5. Each question has four possible answers from which you are to choose the CORRECT or BEST answer.

6. Mark your answer on the separate answer sheet provided.

7. Use ONLY an HB pencil to mark your answer.

EXAMPLE

1. This test is for the subject area of

   A. Science
   B. Mathematics
   C. Physical Education
   D. Language Arts

Answer Sheet

1. A ○ B ● C ○ D ○

8. Mark only one answer for each question. If you change an answer, please erase your first mark completely.

9. Be sure that the number on the answer sheet matches the question you are doing.

10. Your teacher will tell you when to start and stop.

DO NOT START THE TEST UNTIL YOUR TEACHER TELLS YOU TO DO SO.

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https://archive.org/details/grade9mathematic00albe_1

1. Find the difference between 8.679 and 9.2, then multiply the difference by 0.003. The result is

   A. 0.257 01
   B. 0.002 570 1
   C. 0.015 63
   D. 0.001 563

2. When Tom divided 6 into a number, the answer displayed on the calculator was 7.5. What is the remainder?

   A. 0.5
   B. 3
   C. 4
   D. 45

3. Evaluate 3^3.

   A. 6
   B. 9
   C. 27
   D. 81

4. The correct order of $\frac{2}{3}$, 0.7, $\frac{62}{100}$, and $\frac{5}{8}$ from smallest to largest is

   A. $\frac{62}{100}$, $\frac{5}{8}$, $\frac{2}{3}$, 0.7

   B. 0.7, $\frac{2}{3}$, $\frac{5}{8}$, $\frac{62}{100}$

   C. $\frac{62}{100}$, 0.7, $\frac{2}{3}$, $\frac{5}{8}$

   D. $\frac{2}{3}$, $\frac{5}{8}$, $\frac{62}{100}$, 0.7

5. Students in a Grade 9 class have a total of 29 pets. Six students have one pet each, five students have three pets each, and the rest have two pets each. How many students have exactly two pets?

   A. 4
   B. 6
   C. 8
   D. 9

6. Marnie is one year older than Joyce and Joyce is two years older than Sarah. Which question below could be answered using this information?

   A. How old is Marnie?
   B. How old is Joyce?
   C. How much older is Sarah than Marnie?
   D. How much older is Marnie than Sarah?

7. A farmer has 10 more hogs than calves. The total number of hogs and calves is 164. To find the number of each animal, subtract 10 from 164, then divide the result by 2. The final result is the number of calves. Next, add 10 to the final result to get the number of hogs. Which problem below could be solved using exactly the same steps?

   A. Peter is 10 cm taller than Albert. If Peter is 164 cm tall, how tall is Albert?

   B. Joe earns $12 per week more than Len. Together they earn $276 per week. How much less does Len earn than Joe?

   C. Together Debbie and Jane have $64. If Jane has $14 more than Debbie, how many dollars does Debbie have?

   D. A 284 mL can of vegetable soup costs 30¢ more than a can of tomato soup of the same size. Altogether they cost $1.08. What is the cost per can of each soup?

8. Compute $-\frac{4}{3} \div \left(-\frac{2}{3}\right)$.

   A. -2

   B. $-\frac{8}{9}$

   C. $\frac{8}{9}$

   D. 2

9. Mrs. Smith owns three restaurants. Last year one restaurant recorded a loss of $6 272.50 and another made a profit of $8 728.25. If Mrs. Smith made an overall profit of $15 000.75 in that year, how did the third restaurant do?

A. No profit or loss
B. Loss of $12 545.00
C. Profit of $2 455.75
D. Profit of $12 545.00

10. The product of two whole numbers is 136. The difference between these numbers is more than 9. How many pairs of numbers satisfy these rules?

A. 1
B. 2
C. 3
D. 4

11. The value of $(2 \times 3.2) + (1.6 - 0.4 \div 0.2)$ is

A. 38
B. 12.4
C. 7.8
D. 6

12. The decimal equivalent of $\frac{3}{7}$ is

A. $0.\overline{428\ 571\ 4}$

B. $0.\overline{428\ 571}$

C. $2.\overline{3}$

D. $3.\overline{7}$

13. A student converted 2.60 to a basic fraction. Part of this fraction was 13. What was the other part?

A. 5
B. 10
C. 50
D. 100

14. The square root of 29 to the nearest tenth is

A. 5.2
B. 5.3
C. 5.4
D. 5.5

15. The integer -2 expressed as a rational number is

A. $\frac{1}{-2}$

B. $\frac{-8}{16}$

C. -0.2

D. $\frac{-8}{4}$

16. 10^{-2} equals

A. $\frac{1}{10^2}$

B. $\frac{1}{10^{-2}}$

C. -10^2

D. -20

17. The value of $\frac{18^2 \times 6^3 \times 5^2}{18 \times 6^5 \times 5^0}$ is

A. $18^{-1} \times 6^{-2} \times 5^{-2}$

B. $18^3 \times 6^8 \times 5^2$

C. $18^2 \times 6^{15} \times 5^0$

D. $18 \times 6^{-2} \times 5^2$

18. The computer can subtract two numbers in approximately 0.000 003 39 s. This time, expressed in scientific notation, is

A. 339×10^{-3} s

B. 339×10^{8} s

C. 3.39×10^{-6} s

D. 3.39×10^{6} s

19. If $\frac{12}{n} = \frac{36}{21}$, the value of n is

A. 36

B. 7

C. 3

D. $\frac{7}{9}$

20. Gail travelled 200 km in 3 h. If she keeps travelling at this speed, the distance she will travel in 5 h is

A. 333.3 km
B. 330 km
C. 300 km
D. 120 km

21. The distance from the city limits of Edmonton to the city limits of Calgary is 300 km, and the distance from my house in Edmonton to my brother's house in Calgary is 340 km. If I travel 100 km/h from city limits to city limits and 50 km/h within the city limits, how long will it take me to travel from my house to my brother's house?

A. 3 h
B. 3 h 24 min
C. 3 h 48 min
D. 6 h 48 min

22. 37.5% expressed as a decimal is

A. 0.037 5
B. 0.375
C. 37.5
D. 3 750.0

23. John has $2 500 in a savings account that pays 6% simple interest per year. With the interest, which he withdraws at the end of each year, he wishes to buy a camera worth $450. In how many years will he have enough money for the camera?

A. 10 years
B. 7 years
C. 6 years
D. 3 years

24. A salesman sold a total of $12 000 of merchandise in June. He is paid a salary of $1 000 a month and a commission of 8% of his total sales. His earnings in June were

A. $13 008
B. $1 960
C. $1 096
D. $960

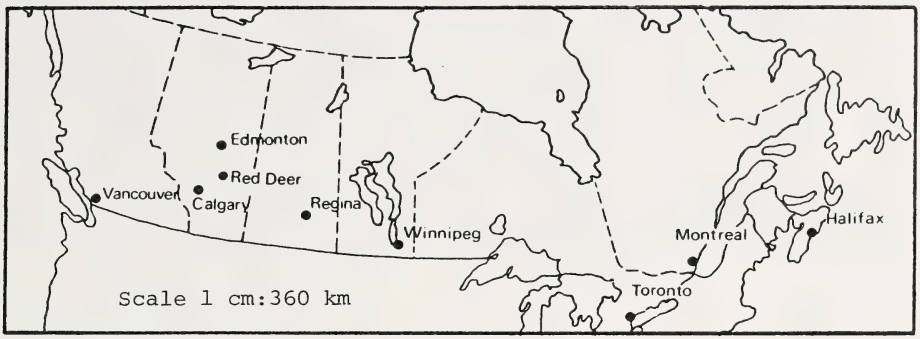
25. George paid $14.95 for a shirt that was half price and $19.20 for pants that were sold at 20% off their regular price. How much did he save in total?

A. $18.79
B. $19.75
C. $24.00
D. $53.90

26. A floor plan of a house is drawn to the scale 1 cm represents 0.80 m. On the plan, the kitchen is 5 cm by 6.5 cm. What are the dimensions of the kitchen?

A. 0.4 m by 0.52 m
B. 4 m by 5.2 m
C. 5 m by 6.5 m
D. 40 m by 52 m

27. Study the map and the scale below.



The distance from Red Deer to Winnipeg is approximately

A. 500 km
B. 1 000 km
C. 2 000 km
D. 3 500 km

28. The shadow cast by a tree is 15 m. At the same time, a boy 170 cm tall casts a shadow of 3 m. Which proportion would be used to find the height of the tree?

A. $\frac{h}{170} = \frac{3}{15}$

B. $\frac{15}{h} = \frac{1.7}{3}$

C. $\frac{h}{15} = \frac{1.7}{3}$

D. $\frac{h}{3} = \frac{15}{1.7}$

29. Paul's marks on his assignments and quizzes are shown below.

Assignment	Mark (%)
1	65
2	43
3	57

Quiz	Mark (%)
1	72
2	68
3	55

If the weightings are 40% for the assignments and 60% for the quizzes, what will Paul's final mark be?

A. 59%
B. 60%
C. 61%
D. 62%

30. A photocopying machine can reduce the size of a picture to $83\frac{1}{3}\%$, 75%, or $66\frac{2}{3}\%$ of its original size. How would you use the machine to make a copy that is 50% of the original size?

A. Reduce to $83\frac{1}{3}\%$, then to 75%

B. Reduce to $83\frac{1}{3}\%$, then to $66\frac{2}{3}\%$

C. Reduce to 75%, then to $66\frac{2}{3}\%$

D. Reduce to $66\frac{2}{3}\%$, then to $66\frac{2}{3}\%$

31. 1 m equals

A. $\frac{1}{100}$ dm

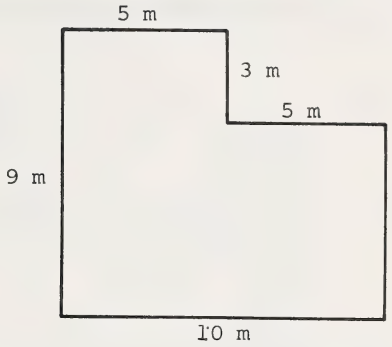
B. $\frac{1}{10}$ dm

C. 10 dm

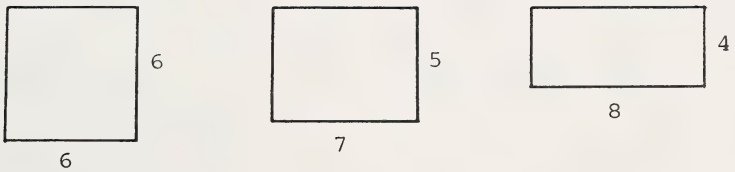
D. 100 dm

32. The perimeter of the figure at the right is

A. 32 m
B. 37 m
C. 38 m
D. 41 m



33. Study the figures below.



The relationship between perimeter and area shown by these figures is that rectangles with

A. the same perimeters have the same areas
B. the same perimeters may have different areas
C. small perimeters have large areas
D. large perimeters have small areas

34. The angles of a triangle were torn off as shown in the figures below.

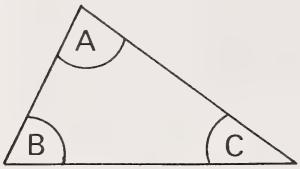


Fig. 1

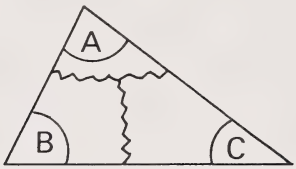


Fig. 2

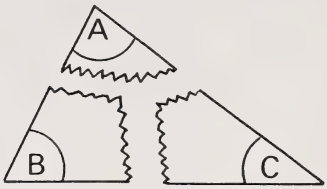
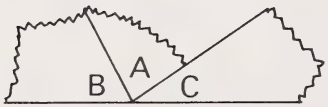


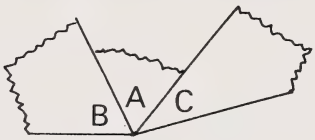
Fig. 3

If the vertices of these angles are placed about a common vertex with no overlapping, which diagram below illustrates the sum of the three angles?

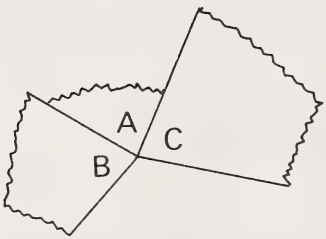
A.



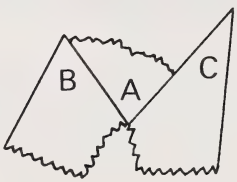
B.



C.

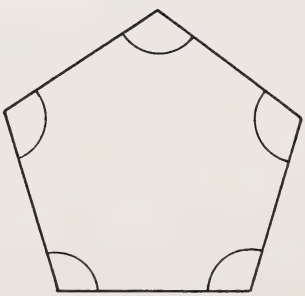


D.



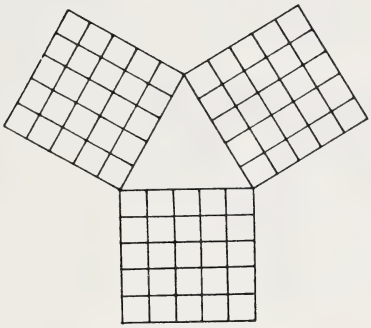
35. The sum of the angles of the pentagon at the right is

A. 180°
B. 360°
C. 540°
D. 900°

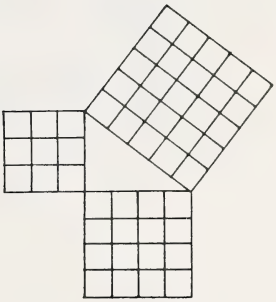


36. The diagram which illustrates the Pythagorean relation is

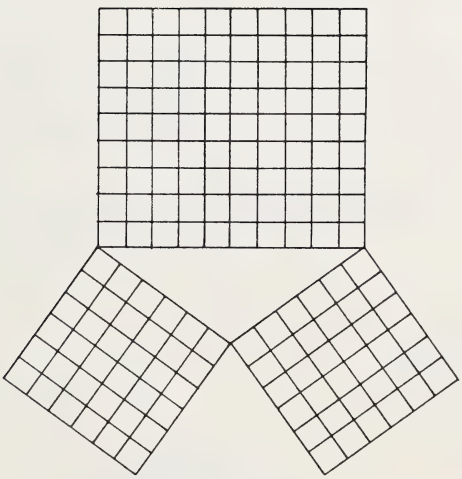
A.



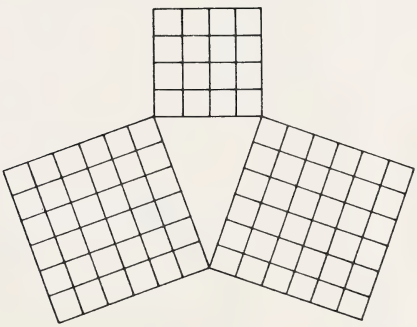
B.



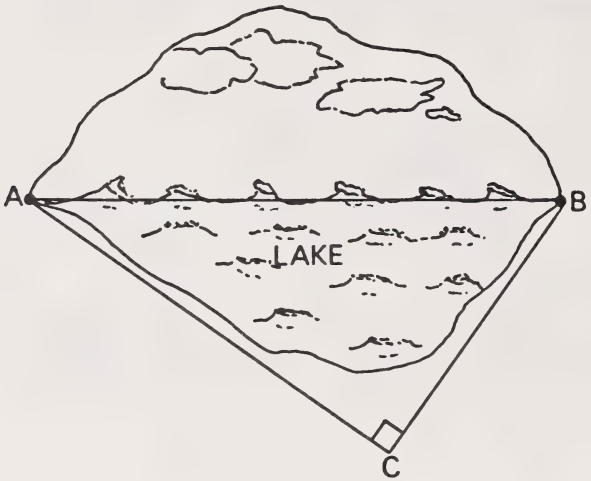
C.



D.



37. You want to know the distance across the lake between points A and B.



Place stakes at A, B, and C such that $ACB = 90°$. The measures of BC and AC are 56 m and 78 m respectively. What is the distance of AB?

A. 268 m
B. 134 m
C. 96 m
D. 54.3 m

38. AB is the diameter of the semicircle at the right. The area of the shaded portion of the semicircle is

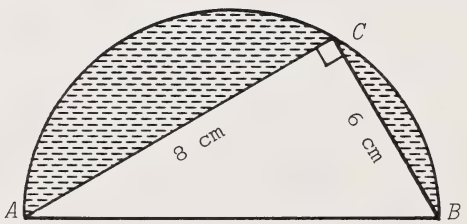
($\pi = 3.14$)

A. 9.25 cm^2

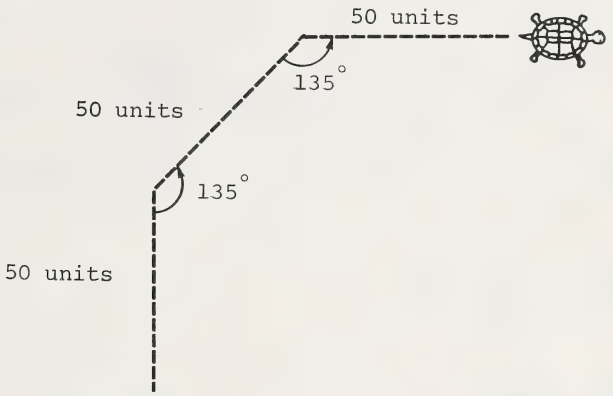
B. 15.25 cm^2

C. 54.50 cm^2

D. 290.00 cm^2



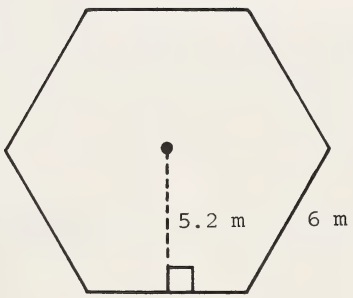
39. The turtle on the computer drew part of the diagram as shown below.



If the diagram was completed by using the same pattern, it would be

A. a decagon
B. a hexagon
C. a pentagon
D. an octagon

40. The area of the regular polygon at the right is



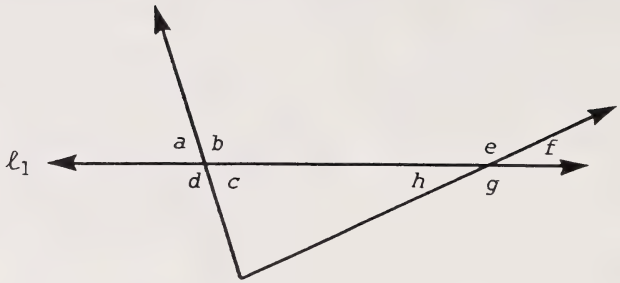
A. 31.2 m^2

B. 36.0 m^2

C. 93.6 m^2

D. 187.2 m^2

41. In the diagram at the right, which pair of angles are supplementary?



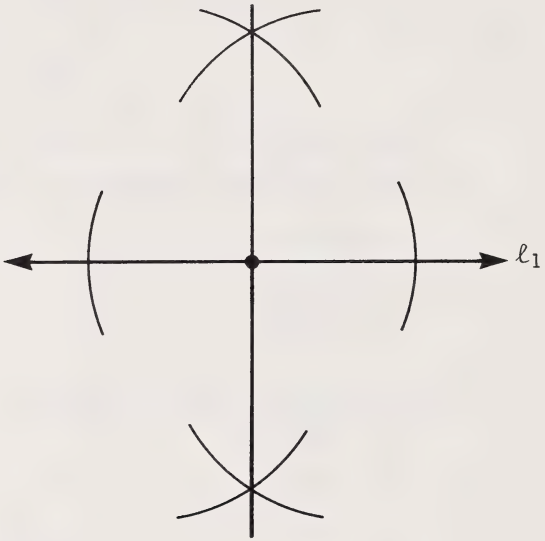
A. $\angle e$ and $\angle h$

B. $\angle e$ and $\angle g$

C. $\angle a$ and $\angle h$

D. $\angle d$ and $\angle g$

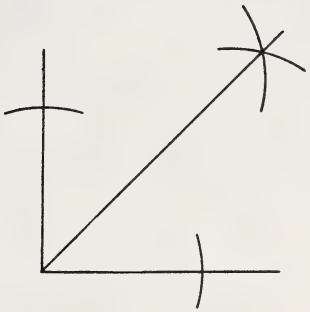
42. The diagram at the right shows the construction of a



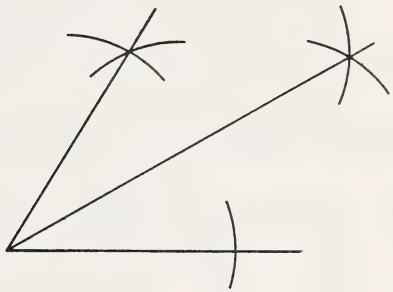
A. parallel line
B. congruent angle
C. congruent segment
D. perpendicular to a line

43. Which of the following shows the construction of a 30° angle?

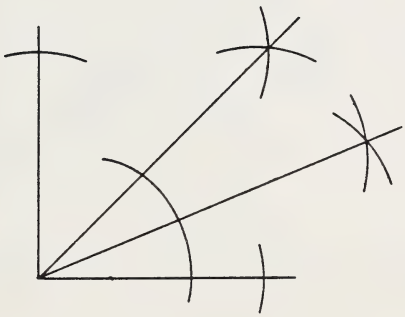
A.



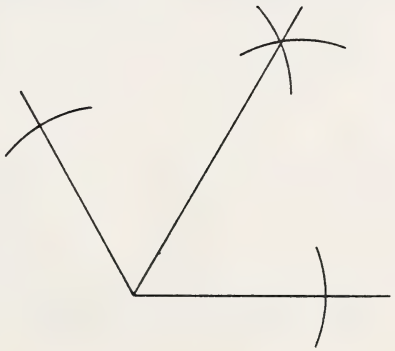
B.



C.



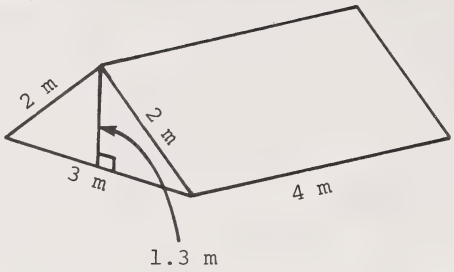
D.



44. To construct a model of a regular pentagonal prism, the shapes needed are

A. 2 pentagons and 5 rectangles
B. 5 pentagons and 5 rectangles
C. 5 pentagons and 2 rectangles
D. 5 pentagons

45. If the tent at the right does not have a floor, the total surface area of the tent is



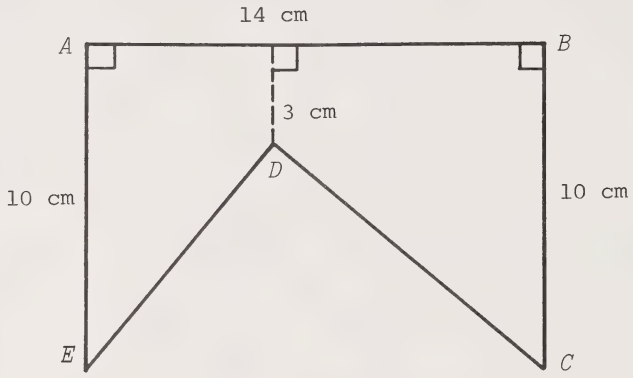
A. 31.9 m^2

B. 19.9 m^2

C. 11.9 m^2

D. 10.0 m^2

46. The area of the pentagon *ABCDE* at the right is



A. 91 cm^2

B. 98 cm^2

C. 120 cm^2

D. 140 cm^2

47. How many 3 cm cubes can be placed in a box with inside dimensions of 12 cm by 18 cm by 12 cm?

A. 96
B. 72
C. 24
D. 18

48. The formula for the volume of a solid cylinder is $V = \pi r^2 h$. If a cylinder has a volume of 197.82 m^3 and a radius of 3 m, what is its height?

($\pi = 3.14$)

A. 593.46 m
B. 28.26 m
C. 21 m
D. 7 m

49. What are the dimensions of a quadrilateral which will enclose the largest area with 60 cm of string?

A. 59 cm by 1 cm
B. 30 cm by 30 cm
C. 20 cm by 10 cm
D. 15 cm by 15 cm

50. The student council has to decide on the type of music for the graduation party for their junior high school. From which of the following groups should the sample be drawn for the survey to determine the favorite music?

A. Teachers of the Grade 9 classes
B. A Grade 9 class
C. All grades in the school
D. All Grade 9 classes

51. Troy made a table of the time spent doing his homework.

Subject	Time (min)
Mathematics	30
Science	25
Language Arts	30
Social Studies	20
Health	15

He wished to construct a circle graph using the information above. These are the steps used to construct such a graph.

1. Determine the size of the angle of each sector.
2. Find the total time spent.
3. Draw and label the sectors of the circle.
4. Express the data as a fraction or per cent.

The correct order of the steps is

A. 1, 2, 3, 4
B. 2, 4, 1, 3
C. 3, 2, 1, 4
D. 4, 2, 1, 3

52. Study the chart below.

Junior High School Enrolment at Westwood

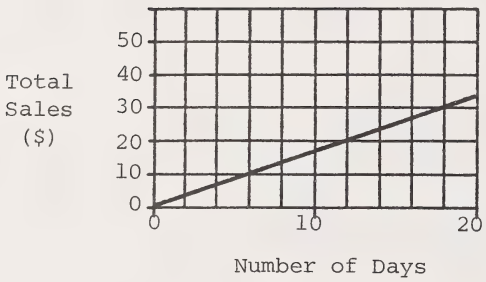
Class	Boys	Girls
7A	16	12
7B	14	17
7C	13	13
8A	15	18
8B	17	11
9A	16	14
9B	15	17

A conclusion supported by the data in the chart is that

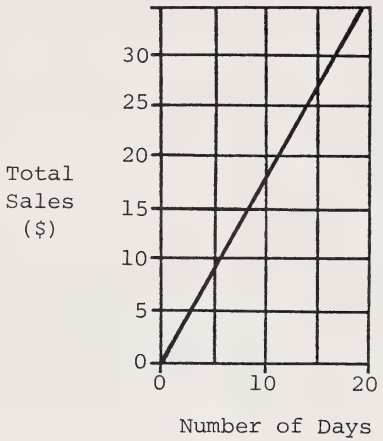
A. the total enrolment at Westwood is 500 students
B. 50% of the students at Westwood are in Grade 9
C. all the students at Westwood take mathematics
D. there are more boys than girls at Westwood

53. Mr. Jones and Miss Brown constructed graphs to compare the amount of money their two classes raised during a fund raising project.

Mr. Jones' Class



Miss Brown's Class



Which statement best supports the information presented in the two graphs?

A. Both classes raised the same amount of money during the project.
B. Mr. Jones' class raised more money during the project.
C. Miss Brown's class raised more money during the project.
D. Miss Brown's class raised money twice as fast as Mr. Jones' class.

54. The types of vehicles passing by a school were recorded for a period of one hour.

C	C	B	T	C	C	M
T	C	C	B	C	T	C
C	C	B	M	C	C	C
C	T	C	C	C	T	C
M	C	C	B	T	C	C
C	C	B	T	C	C	C

C - car
B - bus
T - truck
M - motorcycle

Based on the data, out of 750 vehicles passing the school, how many would you expect to be buses?

A. 5
B. 8
C. 89
D. 267

55. Five students wrote a mathematics test that they had missed while on a field trip. Their mean was 71. If four of the marks were 64, 78, 59, and 81, what was the fifth mark?

A. 56
B. 70
C. 71
D. 73

56. During the recent Winter Olympic Games, the top 10 distances recorded in metres for the Ski Flying Competition are listed below:

167	180	172	169	175
175	169	180	169	187

The difference between the mean and the median is

A. 5.3
B. 1.3
C. 0.8
D. 0.7

57. Don scored at the 80th percentile on his mathematics test. This means that

A. he scored higher than 80% of the students at his grade level
B. he scored higher than 20% of the students at his grade level
C. his test score was 80%
D. his test score was 20%

58. The data below show the height, in centimetres, of students in a Grade 9 class.

158	169	156	174	180	163	162
182	173	168	160	177	167	179
183	157	165	174	169	180	

Use the data to complete this frequency table.

Interval	Tally	Frequency
155–159		
160–164		
165–169		
170–174		
175–179		
180–184		

Which interval has the most students?

A. 180–184
B. 175–179
C. 165–169
D. 160–164

59. Probability is defined as

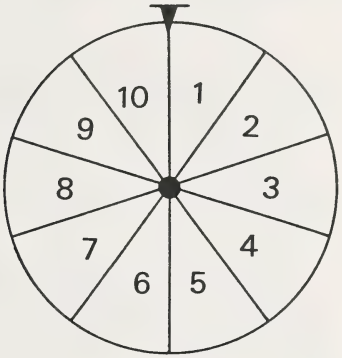
A. $\frac{\text{number of favorable events}}{\text{number of possible events}}$

B. $\frac{\text{number of favorable events}}{\text{number of unfavorable events}}$

C. $\frac{\text{number of unfavorable events}}{\text{number of possible events}}$

D. $\frac{\text{number of unfavorable events}}{\text{number of favorable events}}$

60. This is a Wheel-of-Fortune.



What is the probability that the wheel will stop on a number equal to or less than 3?

A. 0.1
B. 0.2
C. 0.3
D. 0.7

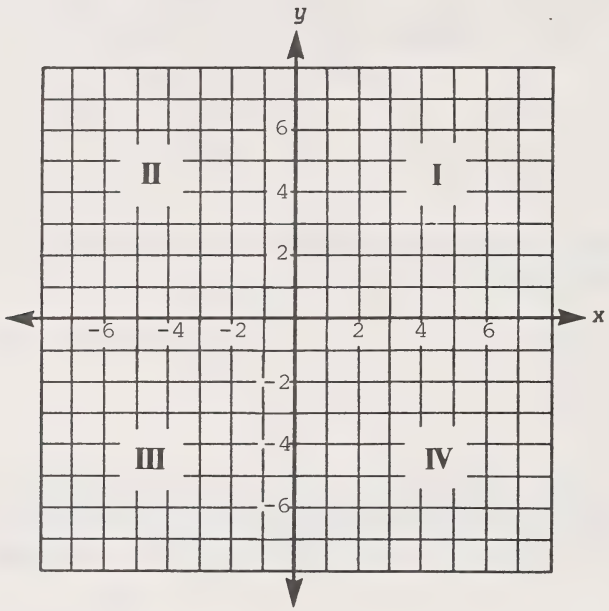
61. In your bureau drawer there are 8 blue socks and 6 grey socks. You reach into the drawer in the dark and pull out socks. The smallest number of socks you must take in order to ensure that you have a pair of blue socks is

A. 2
B. 3
C. 8
D. 10

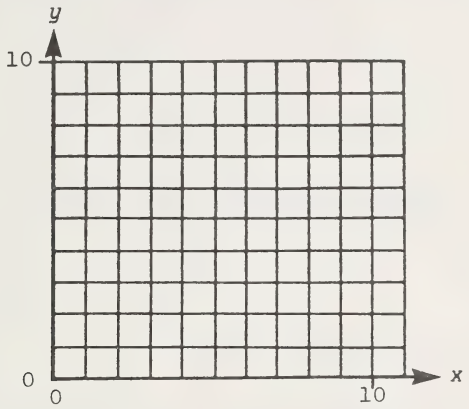
62. If the values given in the table at the right are plotted on the graph below, the points would be located in quadrants

x	2	3	4	5
y	-3	-1	1	3

A. I and II
B. II and III
C. III and IV
D. IV and I



63. The co-ordinates (0,3), (3,0), and (6,3) are the three vertices of a square. Graph these co-ordinates on the grid below.



What would be the co-ordinates of the fourth vertex?

A. (3,6)
B. (0,6)
C. (6,0)
D. (6,6)

64. The value of $x^2 + 3x - 7$ when $x = -2$ is

A. 9
B. -5
C. -9
D. -17

65. If $2x = \frac{1}{2}x + 30$, then x is

A. 30
B. 20
C. 15
D. 12

66. If $6y - 2 = 5y + 4$, then y is

A. 6

B. 2

C. $\frac{6}{11}$

D. $\frac{2}{11}$

67. If $\frac{5}{2} = \frac{35}{y}$, then the value of $\frac{y}{7}$ is

A. 14

B. 2

C. $\frac{1}{12}$

D. $\frac{1}{14}$

68. Tim solved the equation $3y + 5 = 7y - 11$.
Tim's solution was $y = -4$.
In the verification of his solution, the last step should be

A. $-7 = -39$

B. $-39 = -39$

C. $-4 = -4$

D. $-7 = -7$

69. Mr. Dawson uses the formula $p = 7.50 + 1.4c$ to determine the selling price (p) of cassettes in his store. To find the cost (c) of an item, you would change the formula to read

A. $c = 1.4(p - 7.50)$

B. $c = 1.4(7.50 - p)$

C. $c = (7.50 - p) \div 1.4$

D. $c = (p - 7.50) \div 1.4$

70. Lawn fertilizer is made up of (p) kg of potassium, $(2p + 3)$ kg of potash, and $(3p + 1)$ kg of nitrogen. If the mass of a bag of fertilizer is 40 kg, then the mass of nitrogen is

A. 6 kg
B. 15 kg
C. 19 kg
D. 34 kg

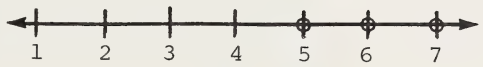
71. If $128k$ is a perfect square, then the smallest value of k is

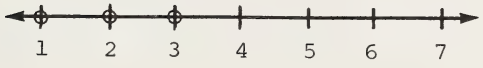
A. 1
B. 2
C. 50
D. 128

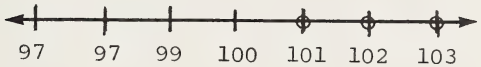
72. The solution to $y + 5 \leq -4$ would include

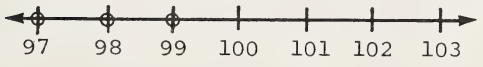
A. $-9, -8, -7$
B. $-11, -10, -9$
C. 9, 10, 11
D. 7, 8, 9

73. In the set of whole numbers, which graph includes part of the solution to $20 < \frac{1}{5}y$?

A.


B.


C.


D.


74. The table at the right shows the comparison between British pounds and Canadian dollars. The relation between the two currencies could be written as

British £	Canadian $
2	4.214
3	6.321
5	10.535

A. £ = $ x 2.107

B. £ = $ ÷ 2.107

C. $ = £ + 2.107

D. $ = £ − 2.107

75. Which equation below expresses the relationship between x and y in the chart at the right?

x	2	3	4	5
y	7	10	13	16

A. $y = x + 5$

B. $y = 3x + 1$

C. $x = y + 5$

D. $x = \frac{(y + 1)}{3}$

N.L.C. - B.N.C.
3 3286 08301959 2